Complete to date.

VOL. IV. NO. 195.

GARDEN AND FOREST

A JOURNAL OF HORTICULTURE LANDSCAPE ART AND FORESTRY

NOVEMBER 18 1891

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How a Town Secured a Pleasure-ground.
Editorial.

Our Native Nelumbo. (Illustrated.)

Mr. Pringle's Filices Mexicanæ.—IV. (Illustrated.)
By G. E. Davenport.

The Colors of Flowers.
By E. Williams Hervey.

The paper will contain an illustration of our native Nelumbo in bloom, from a photograph, and one of Pellæa Pringlei, from a drawing by Mr. C. E. Faxon.

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OFFICE: TRIBUNE BUILDING, NEW YORK.

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ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, NOVEMBER 18, 1891.

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The Report of the Secretary of Agriculture.

THE current work of the Department of Agriculture during the year that is past has been made the subject of record and comment from time to time in this journal whenever that work related to subjects which are of special interest to its readers, but the annual report of the Secretary, which has just been issued, suggests a rather more comprehensive note. We are not concerned now with the general statistics of crop-values for the year, although it is a matter of congratulation that, in spite of the unusual abundant yields, prices of agricultural products, especially of cereals and animals, have been so well sustained that the increase in the wholesale value of these products when compared with those of last year, at the prices then current, amounts to $700,000,000. The most important way in which this department can aid horticulture in its various branches is through the labors of experts who are employed by it in the various fields of study and experiment. Of course, the department can aid horticultural pursuits on their commercial side in other ways, as, for example, by furnishing accurate statistics as to crops in this and other countries, perhaps by disseminating new varieties of fruit and other plants of economic value, by the suppression of fraudulent substitutes for and the adulteration of agricultural products, and by the actual help in the extermination of plant disease and of insects which are injurious to crops. But, after all, the distribution of information which is of practical value to horticulture is a matter in which we are all primarily interested. In order to ensure work of the highest character in this field it is essential that expert talent of the first order should be employed, and it is gratifying to note that many of the divisions of this department are under the control of men who take rank with the best in the republic of science, and they have exerted an influence which has already been felt in one way or another in almost every farm and garden of the country.

It may be worth while to make brief mention of the kind of work which is being done in the department, omitting such important divisions as the Bureau of Animal Industry, and others which relate more strictly to agriculture. Under the care of the Chemical Division the manufacture of sugar has been the subject of study, and an experimental station for the production of beets of a high saccharine richness has been established in Nebraska. Scientific methods of cultivation have been pursued for the purpose of growing beets of a large sugar-content, for the production of seed, and the establishment of a race of plants which equal or excel in quality the sugar-beets of Europe. Two stations have been established in Kansas—one in order to develop a higher grade of sorghum-cane for sugar-making, and the other to illustrate the possibilities of the alcohol process for producing sugar. The investigation in regard to the adulteration of food, especially of syrups and honey, tea and coffee, has brought to light many fraudulent, and some highly deleterious practices.

In the Division of Entomology, the most interesting work has been the importation of a parasite which infests the Hessian Fly, and of another one to help in the suppression of the Cabbage worm. Both of these attempts, especially the latter one, have been highly successful, and the numbers of destructive insects have been largely reduced by their means. It is no doubt true, also, that the serious damage to the Hop-crop in New York state was prevented by an emergency bulletin distributed through the Hop-growing region, which instructed growers how to fight the Hop-plant louse in the most successful way. In the Botanical Division extensive exploration and survey have been made, especially in the Death Valley of southeastern California, and among the grasses and *Cactaceæ* of Texas, New Mexico, and Arizona; and general herbarium collections have been received from the Indian territory, northern Wisconsin, Minnesota and Florida. An experimental grass and forage station at Garden City, Kansas, has been continuing operations started three years ago for testing grasses and grains adapted to semi-arid districts; these experiments seem to show that there are forage-plants which can produce, with proper management, even under the arid conditions of western Kansas, crops not greatly inferior to those of more eastern and moister regions. The most important work of the Division of Ornithology has been a biological survey of parts of southern California and Nevada under the charge of Dr. Merriam and Mr. T. S. Palmer. The expedition was organized to determine the boundaries of the natural life zone in these regions, and to study the problems which relate to the lines which cover the distribution of life there. The determination of such a line is a matter of consequence, inasmuch as it fixes the northern limit of raisin-production and the cultivation of sub-tropical fruits.

The Division of Vegetable Pathology has been so often mentioned during the year, and its work in the treatment of Grape-diseases and Peach-yellows and the disease which is called Peach-rosette, that it only needs to be added here that a large number of New York nurserymen and fruit-growers requested that an agent from that division should be sent to Geneva to remain on the ground to investigate some diseases of the nursery stock which have grown to such an extent in that vicinity. It shows the general interest and confidence in the work of the division when it is said that about 3,000,000 fruit-trees in nurseries have been treated for leaf-blight and other diseases near Geneva, and it is largely through the aid of investigators in this department that some of the diseases can now be controlled at comparatively little expense.

In the Division of Pomology a monograph on the Wild Grape has been prepared, and a bulletin on Nuts of America is in press. Besides this there have been investigations of fibre, a study of artesian wells and underflow, the continuance of the not very reputable seed division and some comical efforts to coax a fall of rain by means of ex-

plosions. The Secretary states that he has every reason to believe that "the experiments were eminently successful so far as the production of explosion was concerned"; that is, the agents were successful in making a noise, but so far they have not been able to demonstrate that they can make rain to order. Of the Forestry Division we shall make special mention hereafter when we have the full report. It needs only to be said that this division is more efficiently conducted than it has ever been, and commands greater respect and confidence.

We are not among those who believe that the pursuits of agriculture or horticulture will languish unless they are special subjects of fostering attention on the part of the general government, and we do not sympathize with the desire that the administrative functions of the Department of Agriculture should be greatly enlarged. But it is gratifying to know that in the exercise of its legitimate activities the work of the department appears to increase in efficiency from year to year.

In an article on the Central Park, published in *Munsey's Magazine* for October, Mr. J. C. Hamilton says: "The list of statues to be found in Central Park is a long and rather curiously mixed one. Daniel Webster, Alexander Hamilton, Fitz Greene Halleck, S. F. Morse—these names are well worthy to be commemorated. It is not inappropriate that the marble image of Columbus, the discoverer of the New World, should stand in this the chief pleasure-ground of its metropolis. Nor can there be any objection to the ideal figures—that of Commerce, the cleverly modeled Indian Hunter, and the memorial to the soldiers of the Seventh Regiment who fell in the civil war. But, strangely enough, all the other statues in the park are those of foreigners. The German residents of New York presented the busts of Humboldt and Schiller. Citizens of Italian birth erected the bust of Mazzini, while sons of stern Caledonia contributed the statues of Burns and Scott. From South America came the equestrian bronze of Bolivar, and the list of monuments is completed by those of Shakespeare and Beethoven. Great men as all these worthies were, and laudable as is the desire of their fellow-countrymen to do them honor, it is somewhat unfortunate that the erection of a statue in Central Park should have come to be the recognized method of giving expression to this feeling. If the process is continued indefinitely, the park will become so thickly dotted with the monuments of foreigners that the statues of Webster and Hamilton may have to be removed to make room for the images of the deceased poets and scientists of England and France, Finland and Kamtchatka."

We do not agree with Mr. Hamilton in the feeling he expresses. We do not think it unfortunate that our foreign citizens should so often have desired to set up memorials of the great men of their own lands in the most famous pleasure-ground of the land of their adoption. We think, on the contrary, that such gifts should be welcomed as a tribute to America's hospitality, as a sign that those who seek her shores are grateful for the welcome they have received, and, while still loving the nation to which they belong by blood, have learned to love the nation which has granted them wider opportunities for happy existence. In any American city such witnesses to the strength of the tie that binds the foreign-born citizen to the community of which he now forms a part would be appropriate. But in New York, which is pre-eminently the cosmopolitan city of America, they have a double title to exist. There may be reasons why this cosmopolitan character should displease native-born New Yorkers, but its expression through public statues should not be counted among them. If such statues are as yet more numerous than those given by Americans to commemorate Americans, the fault is our own, not that of our adopted brothers.

Nor will the presence of statues of notable foreigners be without its good effect on the public, for surely it is well that Americans should be interested in the great men of other lands as well as of their own. We hope, of course, that in the future the preponderance of foreigners over Americans in the bronze and marble population of our pleasure-grounds will not be maintained. We do not want the great men of Europe alone, though we are willing enough to have these if they be worthily portrayed. Just here is the vital point in the matter. Patriotic citizens need not desire to limit the hospitality of our parks by lines of nationality so long as the works bestowed are paid for by private contribution. But they should insist upon limiting it by the lines which divide good works of art from bad ones. They should object very strongly to the presence of certain statues in the Central Park, not because they portray Burns and Walter Scott and Bolivar, but because they are unworthy, grotesque and hideous productions, distressing to the eye of taste, hurtful to the eye of interested ignorance, and injurious to the effect of the beautiful scenes amid which they stand. What the Park authorities should say to Americans and foreign-born citizens alike is: "Give us all the monuments you choose and of any persons you choose, if these were persons who in any part of the world did helpful service to humanity and were an honor to the name of man. But be sure these monuments are good in themselves and well adapted to such stations as they must occupy. It is our business to preserve the beauty of the Park, to provide for the pleasure and profit of its frequenters, not to honor this man or that, or to 'conciliate' any class of New Yorkers. It is your business, if you want to honor your compatriot and thus to exalt yourselves, to make sure that we can help you without being unfaithful to our important trust."

The Cranberry Bogs of Cape Cod.

EVERYBODY knows that Cape Cod supplies the world with its best Cranberries, and that the business of growing that fruit has transformed many hitherto worthless marshes in that region into land worth a thousand dollars an acre and upward. The word "bog," however, carries with it to few persons any suggestion of rural beauty, and yet the Cranberry Bogs of Cape Cod, apart from their economic value, make pictures of rare attractiveness at all seasons, and particularly at harvest-time. The ridges of rock and sand which form the cape would naturally be considered unpromising places to search for ponds and lakes, but not only do such ponds abound in the higher ground, but many beautiful trout streams wind down from the hills into the bay or the sea. As these streams have comparatively little fall, in the course of ages the booty which they have gathered from the hills has been deposited on either side of them until in time they are bordered by wide, marshy, bottom-lands, in which shrubs and plants and trees which love water grow in tangled luxuriance. Many of the Cranberry Bogs are made on the marshes which border these streams. It is a slow process to cut off the thick swamp-growth and grub out and burn the stumps and roots. In many places it is necessary to "turf" the whole area, as it is called—that is, to peel off one or two feet of the entire surface soil with the living and dead, but undecayed, material which has accumulated there. Then the land has to be drained, because, although the Cranberry is a half-aquatic plant and needs to be flooded with water at certain seasons, yet it must have dry and solid root-hold during the season of growth and fruitage. This means not only that dams are built across the track of the stream at intervals, but deep ditches are cut across and often around the bog to catch the drainage from the bank, so that a series of levels or sections is made, each with its dam and system of ditches, until the bottom-lands are all made ready.

After all this, the beds must be covered with sand from three to five inches deep—a laborious task where a hundred acres are to be dressed, and one which would entail an expense that could not be borne but for the happy circumstance that the material is close at hand in the banks which border the bottoms. When the smooth sanded surface has been prepared at a cost of from $250 to $1,000 an acre, long cuttings of the plants are doubled up and thrust through it at intervals of fifteen inches each way by means of a wooden paddle; these quickly root in the rich soil below. During the first summer the slender vines, which spread out in rays from each cutting, make a beautiful tracery on the white sand,

which helps to hold the warmth, to serve as a mulch, to alleviate extremes of drought and dampness, to smother weeds, to keep the plants from being lifted out by frost in winter, and to check a rampant growth and consequent unproductiveness of the plants. The next year the whole area is covered with a net-work of trailing plants and leaves, and the third year, and for no one knows how long thereafter, the whole field will be covered thickly with short upright fruit-bearing branches so full of berries in autumn that one can hardly run his fingers under them anywhere without pulling out a handful. Very beautiful in summer is this lawn-like expanse of glossy green, and it is still more beautiful as the green or white or red or dark purple fruit appears among the thick leaves. Standing on the high bank which usually borders one of these bogs, and looking across it, the level foreground, with its winding brook, stretches away for ten or a hundred rods, according to the width of the bottom, while the further boundary is usually another steep bluff, at whose base Viburnums and Wild Roses, Bayberries and Sweet Ferns are rioting, and above them are Dwarf Oaks, with a forest of Pitch Pine and Oak on the summit to form a waving sky-line as a fitting finish to the prospect. From some points, looking downward through the valley, glimpses of the sea are caught; again a gray road is seen winding up the opposite slope and finally lost in the woods, and every detail of the picture is charming.

At the harvest-time a new element of interest is added by the pickers, who camp on the bluffs and have a picnic for a month or so. For the actual work of picking, white cords are stretched across the bog about a yard apart at right angles to the straight line of the ditch, where the gathering begins. Each picker gets down on his or her knees and takes the fruit clean between two of the cords, so that the entire force of harvesters move forward, side by side, like an advancing line of battle; and as they are men, women, and children of all nationalities and various costumes, the bright colors of their head-gear and other apparel form a picturesque addition to the scene. A small harvesting party is portrayed in the picture on page 545. Pickers are usually employed in groups of a hundred or more, and as fast as a measure, which holds six quarts, is filled by one, he turns it in and receives a dime for it. It is not an uncommon thing for a superintendent of a bog to receive from Boston by express several thousand dollars in ten-cent pieces to be distributed among the pickers for a day's work. Expert pickers sometimes make five dollars a day, and when they use machines, with which the fruit is stripped off by handfuls, they earn considerably more.

The Cranberry Bogs of Cape Cod furnish a striking example of what may be accomplished by specialization in economic horticulture. It has taken long years of experiment and practice to determine what the Cranberry-plant needed in order to reach its highest possible productiveness, and now, with intelligent preparation and enrichment of the soil, close attention to every cultural detail, constant watchfulness against weeds and insects, frosts and fungi, a yield of 150 barrels of solid, evenly colored berries to the acre is not surprising. How thickly the fruit must hang on the vines which yield such a crop may be imagined, if it is remembered that this means a barrel of berries on every sixteen feet square.

Entomological.

A New Herbarium Pest.

IN the year 1890 a number of small Geometrid larvæ, recalling somewhat in appearance those of the genus Aplodes, were found by the botanist of the Department of Agriculture infesting certain dried plants in the department herbarium, and especially those which had been received from Mexico and lower California from Dr. Edward Palmer. Dr. J. N. Rose first observed it in January, 1890, on plants from La Paz, but it was still more abundant in a collection from the State of Colonna, Mexico, made in the beginning of the present year. Being referred to me for identification, I became much interested in the matter, as it was the first case that had come under my notice of a Geometrid larva feeding upon dried plants. The matter acquired additional interest also because the species was evidently new and there was danger of its being spread through distribution into other parts of the world. I therefore took steps to watch the course of the insect and rear it to the imago state. This was done some time ago, and I have had drawings of the different stages finished for some time, and call attention to the matter now because the trouble has grown in the department herbarium and it is of sufficient importance to put on record. The first moth emerged October 22, 1890, and others were subsequently reared from material received from time to time from the department herbarium. While the larva was first discovered, as stated, on Mexican plants, it has not confined its work to such plants, but has spread to others and is by far the most destructive herbarium pest which the botanists in charge have to deal with. Plants of the genus Coulterella, for example, which were sent by Dr. Rose to Dr. O. Hoffman in Berlin, have been so injured that but one perfect flower remained; yet, according to the observations of Mr. L. H. Dewey, in overhauling the herbarium, the insect's work is still mostly confined to south-western plants. Next to these from Mexico those from California suffer most. In some cases eastern plants have not been attacked, even when associated with western, but in one case, at least, that of *Rhus Toxicodendron*, eastern plants have been extensively infested.

The larvæ feed on the flowers and also to some extent on the leaves. More rarely they feed on the hard fruits and seeds. The following list, prepared by Mr. Dewey, of the plants upon which the larvæ had been found prior to its work on *R. toxicodendron*, will be of interest in this connection:

SPECIES.	LOCALITY.
Ptelea aptera	Southern California.
Ceanothus sorediatus	Southern California.
Dalea Seemanii	Southern California.
Lupinus coccinius	Arizona.
Purshia tridentata	Arizona.
Prunus demissa	Southern California.
Ribes viburnifolia	Southern California.
**Epilobium angustifolium*	Eastern Massachusetts.
Arctostaphyllos oppositifolium	Southern California.
Eriodictyon glutinosa	Southern California.
Cilia Rusbyi	Arizona.
Pentstemon secundiflorus	Arizona.
Audibertia Clevelandii	Southern California.
Dracocephalum parviflorum	Arizona.
Salvia ballotaeflora	Arizona.

The eggs are laid upon the plants or on any surrounding object. They are but slightly attached, bluntly ovoid, 0.3mm. wide and 0.4mm. long. They are steel-gray in color, the shell white with faint iridescence when empty, and faintly and irregularly reticulate. The duration of the larval period has not been determined. Growth, however, is very slow, and the period from the egg to the full larval development is variable. The larval life extends in some cases certainly over a period of three months. When full-grown the larvæ attain a length, extended, of 8mm.; contracted when disturbed or at rest of 5 to 6mm. Whenever disturbed they contract

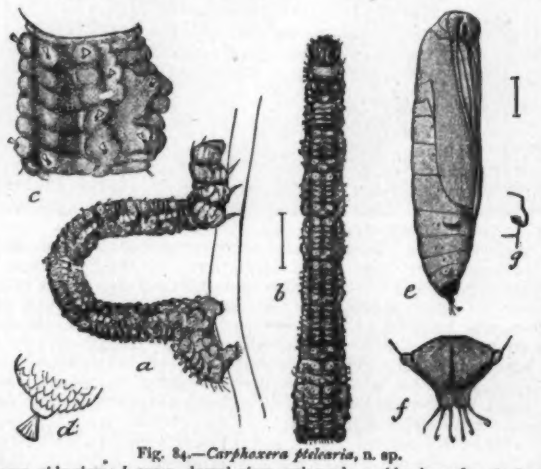

Fig. 84.—*Carphoxera ptelearia*, n. sp.

a, larva, side view; *b*, same, dorsal view—enlarged; *c*, side view of a single segment still more enlarged; *d*, a single tubercle of same—still more enlarged; *e*, pupa; *f*, cremaster of pupa—enlarged.

considerably and become rigid and motionless. The larva is shown in characteristic positions in the accompanying illustration (Fig. 84 *a*). It is dull grayish in color, varying considerably in different specimens. On reaching full growth the larva constructs a cocoon of loose white silk, forming an irregular open net-work, as shown in Fig. 84 *b*. The cocoon is usually placed in a fold of the leaf or is otherwise protected by the plant, and is occasionally partly covered with bits of

* *E. angustifolium* grows in the west, but mostly in northern California and Oregon.

anthers or fragments of leaves. In shape it is irregularly ovoid and is about 6mm. by 3.5mm. The change to pupa takes place about three days after the cocoon is completed, and the moth usually appears eighteen to twenty days after pupation. The pupa is 5mm. in length, somewhat robust, and is slightly yellowish in color, with sutures and tip brownish, the latter being quite dark. A peculiar pad or flap-like projection occurs on the side of the fifth abdominal joint (*e* and *g*). The cremaster is produced, notched at the tip and armed with six long, hooked hairs or spines (Fig. 84 *f*). The adult insect is about 5mm. long, and expands from 13 to 14mm. The general color is grayish yellow, inclining to saffron, the primaries being somewhat darker. The wings are marked (Fig. 85) with transverse bands of dusky shade, and each wing has a discal spot. The head is dark brown, with the antennæ, including a large spot on the vertex, yellowish. The under surface is nearly concolorous, the dark bands being less distinct, and the discal spot more intensified. The fringes are concolorous with the ground color and with black dots beyond the veins.

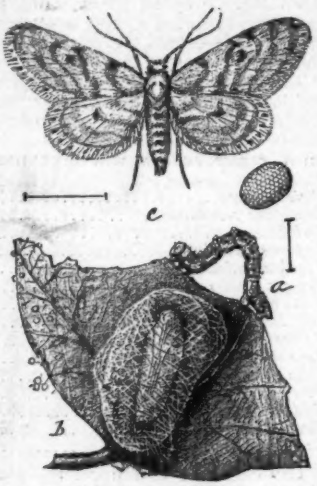

Fig. 85.—*Carphoxera pilearia*, n. sp. *a*, larva in natural position; *b*, cocoon on dry leaf; *c*, moth, with egg at its lower right-hand corner. All enlarged.

This insect has become a source of positive alarm in the department herbarium on account of its rapid multiplication and the harm it occasions. It behooves botanists to be on the lookout for it and to adopt such measures as will ensure immunity from it, if dry specimens are being received from Mexico and the southwest, or from herbaria in which it is known to occur. The custom of poisoning dried plants with corrosive sublimate to protect them from various enemies, such as book-mites, Psoci, etc., should give immunity from the attacks of this insect if the poison has been thoroughly applied. If to the corrosive sublimate a quantity of arsenic is added the protection will be more effectual. I would also recommend, as very useful in disinfecting herbaria of this and other pests, an air-tight quarantine box of zinc or galvanized iron in which the plants may be temporarily placed and submitted to the fumes of bisulphide of carbon, which are very sure to destroy all insect life. Effective steps have already been taken to prevent the sending out from the department of any infested specimens in future.

The fact that this insect has appeared in dry plants from the comparatively arid western regions may furnish a clue to its original habit. It is presumable that it normally feeds on the dead or dried plants of Mexico and adjacent arid regions, and that it has simply adapted itself to the somewhat similar conditions prevailing in herbaria.

This is the first true Geometrid, so far as I know, recorded as feeding on dry and dead vegetation. In the Pyralidina a number of species are known to be not only truly carnivorous, feeding on other insects, but also to feed upon grass and rejectamenta as well as dead leaves. Some Tineina are also known to have similar habits, while in the Deltoid group of the Noctuids several genera are known to feed on dead leaves.

The illustrations, which have been prepared for *Insect Life*, are used by permission of the Honorable Edwin Willits, Assistant Secretary of Agriculture.

Washington, D. C. *C. V. Riley.*

New or Little-known Plants.

New Orchids.

Catasetum Naso, Lindl.—The female flower of this singular species has now appeared in the Kew collection on a plant which has produced males only in former years. It is about the size of those of the other sex, the color light green, with a narrow purple margin to the lip.—*Gardeners' Chronicle*, August 29th, p. 242.

Lælia-Cattleya × Nysa, Hort.—A hybrid raised in the collection of Messrs. James Veitch & Sons, of Chelsea, between *Cattleya gigas* and *Lælia crispa*. The flower is pale lilac, with the front of the lip deep crimson. It was exhibited at a meeting of the Royal Horticultural Society on August 25th last.—*Gardeners' Chronicle*, August 29th, p. 254.

Neobenthamia gracilis, Rolfe.—A very interesting new genus of Orchids, allied to Bromheadia, which flowered at Kew in February, 1890. The plant is a native of tropical Africa, and was sent from Zanzibar, by Sir John Kirk, in 1884. It is of a peculiar straggling habit, as if it grew among bushes and availed itself of their support. The leaves are distichous, drooping, and about six inches long, and the short racemes are borne at the ends of the branches. The flowers are white, the lip with a yellow midline, and a row of rosy purple spots on either side.—*Gardeners' Chronicle*, September 5th, pp. 272, 273, fig. 33.

Cypripedium × Macfalanei, Kränzlin.—A hybrid raised in the collection of Messrs. F. Sander & Co., of St. Albans, from *C.* × *calophyllum* (itself a hybrid from *C. barbatum* and *C. venustum*), fertilized with the pollen of *C. Spicerianum*. It bears much resemblance to the pollen parent, with some characters derived from the mother plant in the petals and leaf.—*Gardeners' Chronicle*, September 12th, p. 300.

Kew. *R. A. Rolfe.*

Plant Notes.

Some Recent Portraits.

In the *Gardeners' Chronicle* for October 3d the cones and flowers of the noble Himalayan Fir (*Abies Webbiana*) are figured. This tree, which is remarkable for the silvery whiteness of the lower surface of the leaves and for its great dark purple cones, succeeds fairly well in some of the southern counties of England. It seems perfectly at home in many gardens on the shores of the Italian lakes, and there are several flourishing specimens in California. Unfortunately, it will not thrive in the eastern states, although possibly in some parts of Georgia and Carolina it will be able to support our eastern climate.

The October 1st issue of the *Revue Horticole* contains a colored plate of a fruiting branch of *Ficus stipulata*. This is the plant which is found in almost every greenhouse under the name of *F. repens*, where it generally only reaches its juvenile state when it is a vine with small leaves, climbing by rootlets developed from the slender stems. At the end of several years, when it becomes adult, it changes its character entirely and develops robust erect branches, producing large, oval, oblong, obtuse, petioled leaves and violet-colored figs the size of the ordinary edible fig. The fruit is produced sparingly, although it seems that in the south of France, in the open air, it is not an unusual occurrence to find the plant in its adult state, and more or less covered with fruit.

F. stipulata has been known in gardens for more than a hundred years. It is a native of Japan and southern China, extending at least as far south as Hong Kong, and it is probable, therefore, that it will succeed in some parts of the southern states, and certainly in southern California. It is needless to say that in its young state it is one of the very best of all evergreen climbers to cover the back walls and other waste places in greenhouses which it is desirable to clothe with vegetation. The fruit is not edible.

Foreign Correspondence.

London Letter.

Cattleya Warocqueana.—Last year I stated in a letter to Garden and Forest that this Cattleya, which had been introduced by M. Linden, and described by Mr. Rolfe, was a form of *C. Gaskelliana*. This statement produced a protest from M. Lucien Linden, who declared that in the opinion of competent judges there was no difference between his *C. Warocqueana* and the autumn-flowering *C. labiata*. At that time I shared the view of many authorities here with regard to this Cattleya, namely, that while it was

of quite exceptional value as a garden plant, it could not be considered identical with *C. labiata vera*. I was wrong. M. Linden has sent to London this week no less than two hundred plants in flower of his *C. Warocqueana*, to be sold by auction after being exhibited in the rooms of Messrs. Protheroe & Morris, Cheapside. Among them there were many which might have been mistaken for the form of *C. labiata*, previously represented in English collections by less than a dozen plants, all supposed to be from the original plant described by Lindley. There were also among M. Linden's plants some which, while possessing all the characteristics of that species, were even superior to it in size of bloom and depth of color. The plants sold well, realizing from twenty guineas to one guinea each. M. Linden deserves all the credit of being the first to discover the whereabouts and to introduce living plants of Lindley's *C. labiata vera*. It follows from there being so many plants of this Cattleya recently imported, first by M. Linden and again lately by Mr. Sander, that there are now thousands of it in cultivation, and consequently the plants which two years ago were worth fifty guineas are now worth perhaps ten shillings. The Cattleya is, however, a most valuable plant for gardens, as it flowers at a time when flowers of any kind are not too abundant, namely, October and November. One cannot, therefore, very well have too many plants of it.

COCHLEODA NOEZLIANA.—Several plants in flower and a large number of newly imported pieces of this new and pretty Orchid were included in the sale at Messrs. Protheroe & Morris' rooms. The flowers are borne on arching spikes, similar in size and form to those of *C.* (*mesospinidium*) *vulcanicum*, but of thicker texture and colored orange, almost the same shade as the flowers of *Ada aurantiaca*. I am told that this little Orchid is very easily grown in a cool, moist house, and that it will flower regularly and profusely.

CATTLEYA BOWRINGIANA.—This is proving itself a first-rate plant, probably the best of the section to which it belongs. It is freer in the production of flowers and more variable in color than its near ally, *C. Skinneri*. I saw this week in the nursery of Messrs. F. Sander & Co., St. Albans, a large number of plants of this Cattleya in flower. Some of the spikes bore sixteen flowers, and I was told of one plant which had borne three spikes, two bearing seventeen flowers and one with eighteen. The color of some of the flowers is deep rosy mauve, others are lilac, others rosy crimson. This variation in color extends to the labellum, some having a large maroon blotch, others a paler one, others a whitish margin, and others no blotch at all, but wholly white inside the tube. The season of flowering may be made to extend over several months in autumn and early winter. Moreover, the plants grow well in an ordinary greenhouse temperature.

DENDROBIUM PHALÆNOPSIS.—A considerable number of the newly imported plants of this Dendrobe are now flowering at St. Albans. So far every one has proved to be a form of the plant represented in the *Botanical Magazine*, and many of them have large and richly colored flowers.

MILTONIA VEXILLARIA, var. SANDERIANA.—This is a new and well-marked variety which is now in flower at St. Albans. It is by far the handsomest of the many forms of this Miltonia, the flowers being three inches across, of good substance, and colored bright rosy mauve, with a large triangular fretted blotch of rich maroon on the labellum. This blotch is the distinguishing feature of the flower, as it is an inch broad at the base of the labellum and is narrowed to a point at the sinus. Mr. Sander obtained this variety from a native collector in Colombia, to whom he paid fifty guineas for it. Should it prove to be an autumn-flowering one under cultivation its value will be considerably enhanced.

DARWIN TULIPS.—This is a new and beautiful race of Tulips which has lately been brought into prominent notice by Messrs. Krelage, of Holland. As Darwin Tulips are almost certain to become favorite garden-plants, their

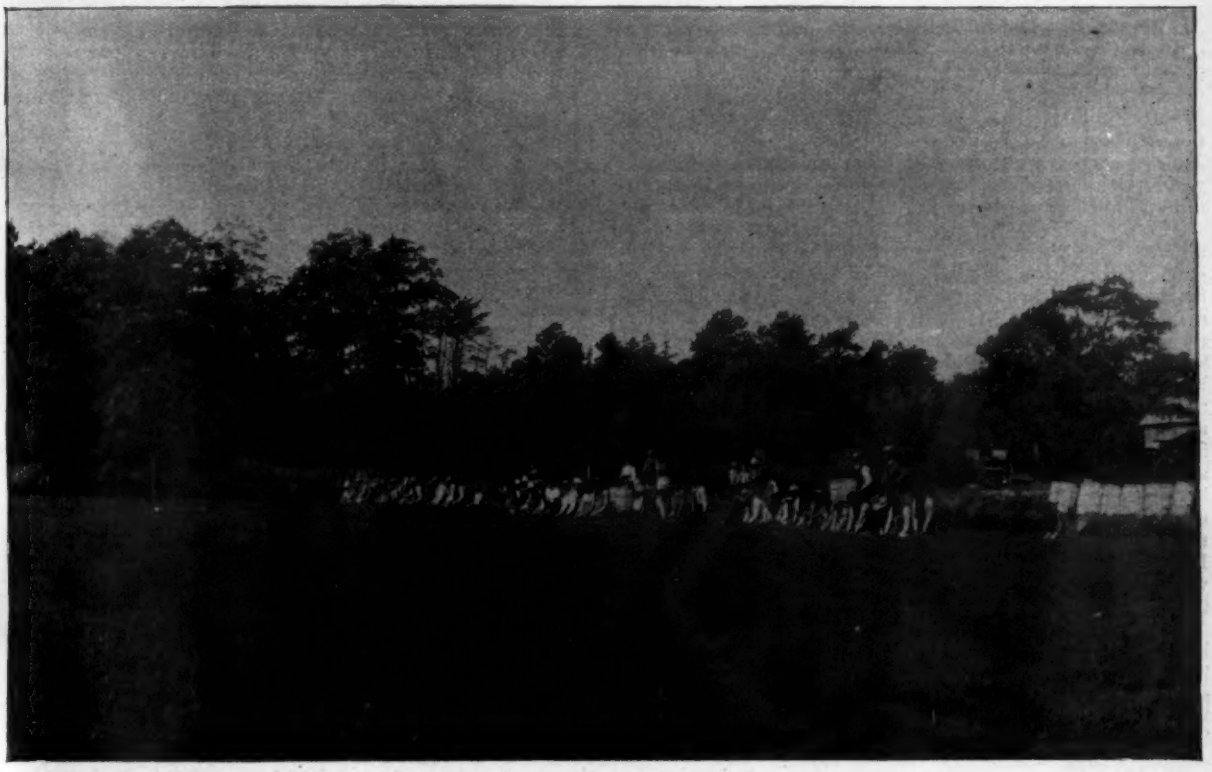

Fig. 86.—A Cranberry-field on Cape Cod, Massachusetts.—See page 542.

colors being so exquisite and varied, and their forms elegant, a few words with regard to their origin may be interesting to bulb-growers in America. I have seen these Tulips in Messrs. Krelages' nurseries, and have heard from the venerable chief of the firm himself the history of what he considers to be the most beautiful of all races of Tulips. The name of the race has been given by Messrs. Krelage to commemorate the work of Charles Darwin in the elucidation of the subject of variation and cross-breeding in the vegetable kingdom.

It appears that about thirty years ago a Dutch bulb-grower set to work to produce from a selection of the best breeders of Tulips a fixed race which should differ from those then known. The plants he had to operate upon had been in the possession of his family over a century. About six years ago the Messrs. Krelage purchased the whole of this ancient collection and transferred it to their nursery at Haarlem, where the process of selection and propagation of the best varieties was pushed on in earnest. The result is now a magnificent collection of bulbs ready for distribution by the Haarlem firm. There are hundreds of kinds, besides many which have not been named. The cheapest mixed bulbs will be sold at about thirty shillings per hundred, while the choicest named sorts are priced at from five to forty shillings each. At Kew there was a small collection of Darwin Tulips in one of the flower-beds last spring. They flowered well, showed great variety in color, and were much admired. They appear to be strong in constitution and to grow vigorously in ordinary garden-soil.

Autumn Leaves.—An exhibition of the most conspicuous among those deciduous trees and shrubs whose leaves assume bright colors before falling in autumn was a special feature of the last meeting of the Royal Horticultural Society. The plants exhibited, as well as the excellent lecture delivered by Mr. H. Veitch, only emphasized what I said in a letter about this time last year, namely, that beautiful leaf-pictures might be produced by means of autumn tints which would equal in effect the best of pictures produced by flowers. The weather in autumn has considerable influence upon the coloration of leaves, and owing to the absence of frost and prevalence of heavy rains this autumn the leaves are not as bright as usual. Still there are plenty of beautiful leaf-pictures in the garden now. Oaks, Rhus, Vitis, Cratægus, Ribes, Liquidambar Nyssa, Acers and many others are aflame with color. Mr. Veitch drew attention to the beauty of all these, and also pointed out that garden-makers, as a rule, failed almost entirely to take these plants into account. The best of the autumn-colored trees and shrubs in cultivation in England are either of Japanese or North American origin. The rich colors of the leaves of these plants as exhibited invested them with a new interest for those who had previously paid no attention to the subject of autumn-colored foliage available for outdoor effects.

New Chrysanthemums.—The following have received certificates, this week from the Royal Horticultural Society: M. R. Bahaunt—a large incurved variety, broad in petal, full, and of a rich red-brown color; Louis Boehmer—already well known in America. So far as English experience with it goes, this variety is much superior to its older rival, Mrs. A. Hardy, which has proved one of the very worst growers in England; R. Smith—a bright-colored sport from Dr. Sharp, distinct in its larger flowers and bright brown-crimson shade; Mrs. Nisbet—a dwarf reflexed variety scarcely three feet high, with rich claret-crimson flowers, broad petaled and suggesting the flowers of Madame C. Audiguier; William Wells—a bright primrose-colored sport from Madame B. Pigmy.

Aristolochia gigas.—This is the correct name for the plant figured last year in Garden and Forest as *A. grandiflora* and noted this year in almost all the English garden periodicals under the same name. The Kew plant was obtained from Mr. Sturtevant, of Bordentown, New Jersey, last year, and it has been a great attraction here since the beginning of August, having produced altogether about fifty flowers, and there are more to come. The largest measured eighteen inches by twenty-two inches, with a tail three feet long. It appears that Lindley figured and described *A. gigas* in the *Botanical Register* in 1842 from a plant introduced from Guatemala to Chiswick, where it flowered in 1841. In 1848 a second figure of it was published in the *Botanical Magazine* (t. 4368-9) under the name of *A. grandiflora*, made from a plant supposed to have come from Jamaica. Herein lay the mistake. So far as can be made out at Kew now Lindley's *A. gigas* has not been found wild in Jamaica or anywhere in the West Indies, and if Purdie found the plant figured in the *Botanical Magazine* in Jamaica it must have been either cultivated or introduced. The species common in Jamaica and the West Indies is *A. grandiflora* true. This is very similar to if not the same as *A. fœtens*, and has comparatively small flowers, certainly less than a quarter the size of Mr. Sturtevant's plant; it also differs in the length and form of the tube, as well as in other structural characters. *A. gigas*, then, must stand for the Guatemalan plant. But this form of it, for which we are indebted to Mr. Sturtevant, is so very much larger than that figured in the places above referred to, that, for horticultural purposes at any rate, it ought to have a distinctive name. We propose, therefore, to call it *A. gigas*, var. *Sturtevanti*.

Kew. *W. Watson.*

Cultural Department.

About Apples.

A NATURAL fault in most men of limited experience is to dogmatize by assuming that their experience covers the whole ground. But in any art having to do with plant-growth and culture the variation of a few degrees of latitude, or even of longitude, on the American continent at least, will expose facts as hard and unyielding as rocks, and over which a cart-load of theory can easily be upset. I have been a fruit-grower and observer in the south and west, and in the north and east, long enough to learn that an even moderate change of conditions will modify fundamentally the whole situation and demand, often, a complete reversal of practice.

As an illustration of this truth it may be stated that while there is no better locality on this continent for the propagation of the Apple-tree than north-western New York, and while there are no more experienced nurserymen than those of that region in matters of which they have full cognizance, yet there is nothing which excites more bitter scorn among practical orchardists in northern New England and the Canadian provinces than the mention of New York trees. On the other hand, I have never yet met more than one New York nurseryman who did not stand ready to overwhelm the very mention of the iron-clad varieties with impatient ridicule. I have myself, at least temporarily, lost credit at pomological meetings in northern New England by saying that I am as willing to plant New York trees as any, if they are of the right variety. But when I went on to ask exclaiming doubters whether they thought a New York grown Oldenburgh would not stand the winters of northern New England, they were compelled to reflect a little. Some would say that New York trees are grown too fast by high manuring, and the wood is tender and pithy; but when it came to close questions they "did not know but Russians and Crabs grown in New York might do well enough."

Now, in my own experience I have never found that strong-growing trees, well cultivated and attended to on well-enriched land, were any more likely to fail, when properly set out and cultivated, than the gnarled and scrubby trees of local origin. With me, strong, vigorous trees (of the right kinds) reaching the height of four or five feet at three years, and then set out in rich soil and well cared for, have continued to grow on and, contrary to much prophesying, come soon and profusely to bearing, and remain healthy after many years. My orchards have been visited by many experts who can testify to these facts.

There is, at present, a controversy on the subject of grafting the Apple upon what are called "piece-roots"; and a western nursery which claims to make a specialty of whole-root grafts sends me a circular in which very eminent pomologists—in fact I may say the most eminent, since President Berckmans and Vice-President Lyon of our Continental Pomological Society are among them—give unqualified assent to the practice.

So do I, with some qualifications which experience demands. There are certainly no objections to whole-root grafts—if you can get them. So far as I know they are not really made; for although a seedling may be used for each graft it is always more or less trimmed. The question is also complicated as regards the iron-clad varieties, by the fact that these root-grafts must be deeply planted to protect them from winter-killing; and it is widely believed, especially in the north-central states and Canada, that it is better to use a short root and a long cion—the grafts in nursery and the trees in orchard being deeply planted in order to get roots from the cion. That this can be done with the Apple, as it is done with the Pear on Quince roots, is unquestionable; and I should ask those gentlemen who prescribe piece-roots whether they have not seen many vigorous old standard Pear-trees which were originally dwarfs on Quince, but are now on roots of their own. I can point to a whole orchard of such trees, some forty years old, in the city of Gardiner, Maine.

President Berckmans will find no man of experience taking issue with his statement that in nurseries and orchards crown-grafts will, as a rule, take the lead in growth, other things being equal. The more root there is to a root-graft at first (if the work is well done) the more vigorous will be its growth in nursery; and if the tree is properly transplanted this lead in the nursery will be maintained in the orchard. I have grown nearly all the trees in my orchards from the root-graft, and such has been my experience. But it is also my experience that grafts with smaller roots make quite as thrifty trees, and the difference seen in the nursery does not increase in the orchard. I have always, when root-grafting, taken pains to choose stock and cion of equal size, so that there should be a chance for union all around; and I would like to suggest that a poor growth upon a medium or small root is as likely (and indeed much more likely) to be due to a bad fit between root and cion than to the mere size of the root. It should be understood that all the stocks should be carefully assorted at digging and all weaklings rejected. Difference in the size of healthy roots, within limits, is due chiefly to a more or less good chance in the seed-bed. Even with careful thinning this will be true. If all these points have due and careful attention a moderate difference in the size of roots makes no practical difference in the size and productiveness of the orchard tree.

I think there is one fallacy which has fixed itself in the minds of some very intelligent men. It is that there is something specially vital in the point of junction between root and stem. Some seem to think it as vital as the heart in an animal, or something analogous to it, but I have no experience to confirm that idea, and a great deal against it. A tree may be planted with this point of union considerably above or below the surface without injury. If a root-graft is made with a cion a foot long, and set out so that only a few inches is above ground, this neck will be formed at the surface and the young tree have a perfectly normal appearance afterward. As a reverse experience I may mention that several years ago I noticed that a number of Apple-seedlings which had been left in the ground over winter had been thrown out so that about three inches of the root was above the surface. As an experiment I merely trod the earth firmly to the plants as they stood. They grew and formed perfect new necks at the surface, while the portion of root above ground assumed the color and look of the wood above. The same thing happened at the same time to a young Russian Pear-tree, which was also left untouched. It made a growth last season of over four feet on the main shoot, and the new point of junction has the normal appearance. I may add that in experimenting with a collection of root-grafted Siberian Crab-hybrids some fifteen years ago I found one variety that absolutely refused to unite with the root on which it was spliced; but several of these sent out roots from the bottom of the cion and made a vigorous growth of top, forming perfect and well-balanced trees, which I have often shown to visitors as specimens of Apple-trees grown from cuttings.

Newport, Vt. *T. H. Hoskins.*

The Propagation of Ferns.

WHEN Ferns are propagated by means of spores, which is the usual way, the first matter to be attended to is the collection of the spores, and this requires the exercise of some judgment, for if the fronds are cut before the spores begin to ripen they will be of little value. The usual practice is to collect the fronds as soon as a majority of the fruit-dots appear to be opening. The fronds should then be wrapped up in a clean paper and put away in a warm, dry place for a week or two, after which it will be found that many of the spores have been shed from the sporangia into the paper. In order to secure the remaining spores, the fronds may be rubbed between the hands and then passed through a very fine sieve (a No. 40 mesh answers the purpose very well), to free the spores from the fragments of the leaf. If not sown immediately, the best method of storing the spores is to put them in small vials, such as are used for homœopathic medicines, and in which they may be tightly corked and put away in a dry place for future use.

Where Ferns are raised in large quantities for trade purposes the sowing of the spores is usually done during the fall and early winter, so that the seedlings may be ready for potting off in the spring or summer, the majority of such Ferns being sold in small pots within a year or eighteen months from the time the seed was sown. This raising of crops of seedlings at certain seasons is not, however, so necessary in private establishments, and consequently the spores may be sown at the convenience of the cultivator, though it should be borne in mind that in most cases fresh spores are preferable to those that have been stored for a long time.

The compost best suited for Fern spores in general is an open mixture consisting of equal portions of peat and loam, with enough sand to keep it porous, the various ingredients being passed through a fine sieve. Either pots or pans may be used to contain the soil, but in either case abundant drainage material should be provided, and about five or six-inch pots, or pans six inches square, are convenient sizes. The pots should be filled firmly with the soil and thoroughly watered, after which the spores should be thinly scattered on the damp surface of the soil and should not be covered. The seed-pots should then be placed in a propagating frame or covered with panes of glass, to prevent the soil from drying out rapidly, but in either case should be ventilated each morning, so as to avoid too great an accumulation of moisture on the glass.

The time required for germination varies with different Ferns. Some species of Pteris are among the quickest to germinate, and the young plants often appear in a week or ten days. As soon as this growth becomes visible more air should be given to the seed-pots or the minuter plants may be attacked by fungus, and the prothalli are so tender and so close together that it is exceedingly hard to arrest any such disease. It is under such conditions as these that the wisdom of sowing in small vessels is seen, from the fact that when the prothalli begin to "damp off," the entire contents of the seed-pot is often lost. Probably the best method of checking such disease is to give plenty of air to the seedlings and to keep the affected pots rather dry. I have tried sulphur, lime-water, sulphate of lime, dry sand, and some other remedies that have been suggested for this fungus from time to time, but with little success, and the cultural care above recommended has proved the most satisfactory remedy.

As soon as the seedlings are ready to throw up their first leaf they may be pricked out into other pots or pans, transferring them from one pot to the other in small patches or clumps, and as soon as these are large enough to handle they may be divided again into single plants and thus potted into two-inch pots. After potting, the seedlings should be kept moist and well shaded until they have begun to root afresh, and after this the culture of most species is easy. As new varieties are frequently found among Fern-seedlings additional interest is thus given to what is at all times a most fascinating branch of the gardener's art.

Holmesburg, Pa. *W. H. Taplin.*

Thorpe's Pedigree Seedling Chrysanthemums.

IT has often been doubted, even by competent cultivators, whether it be possible to hybridize the Chrysanthemum with any certainty. Not only are the composite flowers with difficulty preserved from the visits of the fly prevalent during their season of bloom, but they are also likely to be self-fertilized. Those who have watched carefully the productions of a few of our most noted growers can have had little doubt that they at least were working on lines of some certainty. It is unnecessary to say to the readers of GARDEN AND FOREST that John Thorpe is one of our most ingenious and accomplished hybridizers, and those who have had some hint as to his operations on the Chrysanthemum were not surprised to see his offering early in the year of a set of plants with parentage given. This was a notable event, it being the first time that any grower has offered plants with male and female pedigrees. At the most we have been given one parent, probably often determined by the shape of the seedling.

Mr. Thorpe's seedlings of the year were produced in an endeavor to supply early-blooming plants with the good qualities as to foliage of Gloriosum, Nichols (October Beauty), together with some range of color, and, if possible, of more pre-

cocious habit, for which purpose Madame Desgranges was used in some cases. The fine strong plants with which Mr. Thorpe favored me early in the year were planted out on the north side of my Chrysanthemum plot, where they had plentiful supply of light, without being too severely exposed to the sun, which is usually so trying to varieties of this section. This location was given, however, for convenience, not from any doubt as to their hardiness, and was somewhat detrimental to their early flowering, and the varieties this season were all behind the dates given by Mr. Thorpe. The plants were grown on with ordinary care given to the other plants, but were allowed to carry all the wood made by their various breaks. Mr. William Piercy, of London, who has been the chief propagandist of the early-blooming Chrysanthemum, says that an early variety to be of value must be a free bloomer and capable of throwing flowers of character and well formed without disbudding.

I have grown Mr. Thorpe's plants on this plan with very satisfactory results in most cases. The indications of the plants, except in one case, noted later, all point without doubt to the parentage as given. Salvator (Gloriosum × Roi des Precoces) is a dwarf stocky grower, very free blooming, the entire head of the plant being covered with good reflexed flowers of a red-bronze shade—a fine variety. Bolero (Nichols × Gloriosum) is a rather tall, free-growing variety, with good foliage but rather weak stems. It was covered with a mass of pleasing chrome-yellow flowers. Eurus (Gloriosum × Roi des Precoces) seems intermediate in habit between the two former varieties, and has bronze flowers of a lighter shade than Salvator. In Sallie McClelland (Nichols × Desgranges) I fail to see any indications of Desgranges blood. It seems a counterpart of Lady Selborne, and possibly my plant may be a rogue. Firenzi, Russell and Stratmeath are Desgranges seedlings, and may be of some value where Madame Desgranges does well, as it does not in my garden. The crosses of this variety do not seem to me to have produced results which will be generally useful in gardens, though in some latitudes they may prove valuable, but probably only where the parent does well. Garden and Forest has already noted the abundance of seedlings to be seen at Mr. Thorpe's place, and it is to be regretted that his labors as Chief of the Bureau of Horticulture will interrupt the introduction of other promising varieties for a time. However, we are likely to hear much of the early Chrysanthemum another season, when S. Delaux's new varieties are disseminated, with a promise of Chrysanthemums all summer, which would seem to be tiresome.

Elizabeth, N. J. *J. N. Gerard.*

Cleome pungens.—Several inquiries regarding this plant have reached me during the past season. It is a soft-wooded perennial, whose branching stems, beset with numerous spines, are from three to four feet high, and thickly furnished with large dark green digitate leaves, arranged alternately and covered with glutinous hairs. The flowers are borne in compact terminal racemes of twenty or more. The corolla, consisting of four spathulate or obovate petals, measures two inches in diameter, and is either white or rose-colored. An elegant appearance is given to the inflorescence by the dark purplish color and divaricate arrangement of the long slender pistils and stamens. The white-flowered form of *C. pungens*, under the name of *C. spinosa*, was cultivated as long ago as Miller's time, having been introduced into England from the West Indies about 1731. The other variety is a native of the same region, but it was not known in gardens until 1812. Both plants were to be met with occasionally in the greenhouses of British gardens about ten years since. A few years later they disappeared almost totally, except in the case of botanical institutions. Now the red-flowered form seems to be commonly cultivated in this country, some one having been sufficiently thoughtful or speculative to distribute a quantity of its seeds a year or two ago. It is well liked, judging from the comments of several, and is likely to attain some degree of popularity. In this climate, however, it should be treated as an annual. It blooms profusely from seed the first year, and the flowering season extends from July till the latter part of September. Mr. W. Miller, of Groton, Massachusetts, has had much success with this plant, and he says the seeds were sown on the greenhouse-bench on the 1st of June, the day they were received; the seedlings transferred to shallow boxes June 18th, and planted in the open ground July 25th, coming into flower August 18th. That was a good performance, but a longer season of bloom would have been secured by sowing in April or May, and getting the plants into the ground early in June. The seeds ripen freely, and both varieties succeed with equal satisfaction under the same treatment.

Sedum Sieboldii.—This is a pretty little plant and one that is, fortunately, common in gardens. It is generally grown in pots or baskets and used in the adornment of greenhouses. The decumbent habit of the stems renders it exceedingly effective in small pots placed along the edges of the stages, and that also makes it so valuable in suspended baskets. It is an excellent plant for the house, thriving well in the dry atmosphere of inhabited rooms. But, admirable as it is under these conditions, the chief merit of the plant is found in the hardiness of constitution which fits it for the herbaceous garden. The opinion that it requires the protection of a greenhouse in winter seems to prevail, even in the comparatively mild climate of England. That this is erroneous has been amply demonstrated in our rock garden, where a specimen has safely weathered the severest storms of several seasons. The slender, simple stems are from nine to twelve inches in length, and they are bent flat to the earth by the weight of the flowers and succulent foliage. The glaucous leaves, tipped with reddish purple, are round, tapering to a wedge-shaped base, and arranged in close whorls of three. The flowers, borne in dense, terminal, broad, compressed clusters, are of a bright rosy purple color, and remain perfect on the plant at least six weeks. Add to this the fact that the flowering season extends from early October until late in November, and we have an unusual collection of good qualities. In this locality we have already had several nights of frost which may be safely called severe for the time of year, but the flowers of this Sedum still hold their own and are as bright and perfect as ever they were. The plant is a native of Japan, whence it was introduced in 1838. There is a variety (*S. Sieboldii variegata*) distinguishable from the type by a large creamy white blotch in the centre of each leaf. Both plants do well in slightly raised sites of the rockery. They look best when planted so that their branches may spread downward over the sides of neighboring stones, and are easily propagated by division.

Tritonia crocosmiflora.—That celebrated hybridizer of plants, Monsieur Lemoine, of Nancy, France, obtained a cross between *Crocosmia* (*Tritonia*) *aurea* and *Tritonia* (*Montbretia*) *Pottsii* some years ago. The genera Crocosmia, Tritonia and Montbretia are close allies, and were then considered quite distinct, but Montbretia has since been incorporated with Tritonia. The names are yet exchanged indiscriminately among gardeners. The hybrid was called *Montbretia crocosmiflora*, and is still widely known under that name. M. Lemoine has been successful in obtaining numerous other forms of Tritonia, which, judging from the comments of European observers, are likely to occupy a prominent place among hardy plants. *T. crocosmiflora* is, so far as I am aware, the only hybrid yet planted in this country, and with rare exceptions its use is confined to those who can supply greenhouse cultivation. Its usefulness as a subject for pot culture is beyond dispute, but as the plant is hardy, under certain conditions it would prove useful to many who do not possess a greenhouse. The doubt which has existed regarding its hardiness may have deterred many who admire it from acquiring a stock for outdoor planting, but there is no reason why it should not be extensively cultivated in every garden from Boston to San Francisco. I am not prepared to say that it will prove entirely hardy when planted in flat beds of rich soil, as seems to be the practice in some parts of Europe. The large bulbs produced under such conditions migh prove to be too tender for this climate. But in a somewhat dry position, with soil of medium quality, the results are eminently satisfactory. That, at least, has been the experience here, and surely there are many other gardens throughout the country in which it may be repeated. *T. crocosmiflora* is about intermediate in character between the two parents. The narrow, sword-shaped leaves, sheathing at the base, are from twelve to eighteen inches long, and of pale-green color. The stem is from two to three feet high, developing at the top a branched spike of orange-scarlet, tubular flowers about an inch in diameter. It is a free-flowering plant, maintaining a perfect succession of bloom from August till October. The bulbous roots should be planted about two inches apart in patches of not less than a dozen in order to secure a good effect.

Cambridge, Mass. *M. Barker.*

Cattleya Walkeriana is one of the most beautiful of dwarf-growing Brazilian Cattleyas, and one which deserves to be more extensively grown. In the collection of Hicks Arnold, Esq., in 84th Street, New York, there is a specimen in excellent health, which flowers annually in great profusion, and is now a very pleasing picture, with its large warm, rosy purple blossoms. It appears to be a great lover of sun and is treated to an abundance of air while in active growth, and thrives best

in a basket or pan suspended near the glass. A remarkable characteristic of this Cattleya is that its blossoms do not present themselves from the apex of the pseudo-bulb, but after each new bulb is completed, a growth appears from its base, which afterward sends forth the flower-spike; when the blooms are past, this develops into a new bulb. Good fibrous peat and very little sphagnum is the best compost, with ample drainage.

New York. *A. Dimmock.*

Damping Off.—The conviction is growing in my mind that the trouble that propagators style "damping off" is a generic one, with a long list of species. If seedlings fall away on account of a decay which appears at or near the surface of the soil it is a clear case of this malady. The portion of a young stem that is most exposed to fungous attacks is that near the soil. Not only does the soil furnish the required moisture for the most rapid development of the fungus, but it also provides the fungus itself in nine cases out of ten. This seems to be true of seedlings, and therefore the precaution should be to have the soil as free as possible of the germs or filaments of the destructive fungus. And, furthermore, any remedy that may be suggested should contemplate a more healthful soil instead of looking toward the cure of a plant that is already ailing. For damping off, therefore, the remedy is not for the plant, but the medium in which the plant is attempting to grow, and from which it receives both its sustenance and the enemy that seeks its life. There are possibilities that the seed itself may be affected, and in such cases the trouble is to be met, if at all, before planting by soaking the seed in some fungicide. This I have tested at length during the past season with Beans, and have determined that the disease, which appears quickly upon the seedlings, was already in the seed before the beans were placed in the soil. It was also shown that by soaking such affected seeds in a solution of carbonate of copper the amount of the seedling trouble could be greatly reduced. While this is not known under the name of damping off, it does not differ from some of the forms of fungous disease called by that general name.

Again, the destructive agency we are considering may prevail among cuttings, and perhaps the amount due to outward conditions about balances the damping off due to a fungus already in the wood when it was placed in the sand. If healthy cuttings damp off, then it is assumed that the soil is greatly at fault; but if the wood is unhealthy, it does not matter much what the soil may be so long as it furnishes water and keeps the lower portion of the cutting wet, the latter will decay at the surface of the soil. I have in mind a bed of Abutilon cuttings which failed almost entirely because there was a fatal fungus in the stock used. It showed itself slightly in the foliage of the large plants, and only when the cuttings were placed in the moist earth did the fungus obtain the best conditions for growth, and damping off followed as a natural sequence. There is little or no hope of a preventive in such cases, unless the soil-water be impregnated with an effective fungicide, which again only shows that, even with unhealthy cuttings, the soil is the medium for treatment.

Rutgers College. *Byron D. Halsted.*

Correspondence.

In the Shore Towns of Massachusetts.—II.

To the Editor of GARDEN AND FOREST:

Sir,—The town of Rockport has no public holding of any kind available as a place of public resort, no park or common or right on the shore, except, perhaps, a landing or two. There are two or three beautiful headlands here, very convenient for picnics and out-of-door assemblies. They should be secured for public uses, as this region is certain always to have throngs of visitors. Unless steps to this end are taken very soon these specially attractive sites are likely to be taken up for dwellings by people of means. Pool's Hill, near the village of Rockport, affords a very extensive view of the ocean, of the shore regions, and of some points far inland. It is 230 feet high. The clerk of the town, Mr. Calvin W. Pool, has for several years found his chief recreation in the effort to distinguish and identify the various features of the landscape visible from this eminence. Several years ago he discovered that Mount Washington can be seen from here, and I saw letters from the officers of the United States Coast Survey and other eminent scientific men confirming Mr. Pool's triangulations and conclusions. The hill ought to be public property.

Rafe's Chasm is a wild, rocky cañon on the shore, a little below Norman's Woe, at the entrance of Gloucester Harbor. It is an interesting place, and attracts many visitors and picnic parties. It is dangerous in the present undefended condition of the ledges. There should be railings along the steepest places. One fatal accident, which occurred many years ago, is commemorated by an iron cross fixed in the rock, and if the chasm remains unguarded there will probably be other monuments erected here in time, as the number of visitors increases. There should be a small public reservation here. The view of the sea and of a wide expanse of the shore country is very attractive, and the public should have a right to come and enjoy it; but the adjoining land is likely soon to be put to use as the site of a fine house, and the chasm will then be included in the owner's private grounds.

Not far from Rafe's Chasm there is a Pine grove, which is very pleasant and convenient for picnics, and has long been used as a place of public resort by the people of the region. Some years ago it was purchased by a public-spirited woman, who is interested in the objects for which the Trustees of Public Reservations were incorporated. She is especially desirous that the people of the adjacent country shall have access to pleasant and interesting places by the sea, and wished to preserve this tract and the Pine grove for that purpose. She gladly gives the use of it to all comers, asking only that the trees shall not be injured, and that fires shall not be left burning to endanger contiguous property. She has had some rather discouraging experiences. The picnic people mutilate the trees, leave fires burning, tear down the notices which request caution, and show such a spirit of disregard and mischief that the owner is compelled to employ some one to care for the grove much of the time during the picnic season. This is an unreasonable burden, as the grounds yield no income or profit. It is probable that the abuse of the privilege here enjoyed by the public will lead to its withdrawal. A similar state of things exists in many places where the people are not sufficiently enlightened and public-spirited to make a proper and rational use of parks and open spaces for public resort. Among an orderly population the expense of caring for sylvan reservations of this kind is very slight.

Manchester has several open spaces of various kinds which are the property of the town, and are used as places of public resort. One has an area of perhaps seven acres, and is used for picnics. There is also a picnic ground at Tuck's Point, one-fourth of an acre, which is a town landing, used as such since 1730. There is a building here, fifty feet by twenty, for tables, etc., and the town provides a janitor. This feature I have not observed elsewhere. There are several other tracts—seven acres on the plain, bought with the idea of having the town Poor Farm there, but not used for that purpose; Old Neck Beach, more than half a mile long, with adjoining land, of varying width, running up the shore; Lobster Cove Landing, two hundred yards of shore, and the ground the powder-house stands on. The people talk of selling some of these, as they think the town has more land than it needs, or can afford to keep. One of the most valuable and interesting of the public holdings of the town, and highly appreciated by the people, consists of a belt of land along each side of the highway between Manchester and Essex. This was purchased a few years ago in order to preserve the woods along this road, which were then about to be destroyed. Their preservation is the result, chiefly, of the efforts of a few thoughtful women in the neighborhood. The title to the property is vested in the town, and the deeds have been deposited in the office of the Town Clerk.

The only public holding of importance in the town of Beverly is West Beach, which belongs to the West Beach Association, incorporated by a special act of the Legislature in 1852. This corporation is composed of all the resident inhabitants of the East Farms School District in Beverly, and of the people of a designated portion of the West Farms School District, and it is authorized to take and hold all that portion of the sea-shore, beach and flats of Beverly Farms which is included in the limits defined in the act of incorporation. There may be five or six acres of the land, but, I think, scarcely so much. Nobody appears to know how much there is. It is part of the land, beach and flats originally granted by the town of Salem to John West in 1666, and the title has ever since then been in him and his heirs and legal successors. The members of the corporation may use and occupy this piece of sea-shore for boating, bathing and gathering drift-stuff and sea-weed, and they are required to keep in good repair a certain small piece of road or causeway for public travel and a few rods of sea-wall, not a difficult or costly requirement. I find nothing in the act of incorporation requiring the association to take care in any other way of the property to which they are thus given title, and it has a neglected and unattractive appearance on the

landward side. Much of the area is overgrown with weeds, which, when I was there, were tall enough to conceal a group of artists who were sketching the sea view, which nothing can spoil. The place might be made much more attractive and valuable to the people who have a right to go there, especially to the women and children, and I think the act of incorporation should be so amended as to require the association to take reasonable care of the property and to keep it in a neat and orderly condition.

There is no common or public holding in the region which is still marked Beverly Common on the maps, nor has there been in any recent time. I think this reproduction and perpetuation of old terms by successive map-makers is probably the source of the popular notion or impression that there are still considerable areas of common or undivided town-land in many towns in Massachusetts. The Trustees of Public Reservations were made a corporation for the purpose of acquiring, holding and opening to the public "beautiful places and tracts of lands," and if we are to have anywhere a reservation for beauty and the delight of those who love beauty, I know of no place in the state better adapted to such uses than this region of high rocky pasture and encompassing woodland. The distant view is fine in every direction, and the whole of the vast visible landscape is full of character, strong, alluring, tonic and satisfying. It is a place for artists and for people with a developed sense of the beauty and value of fine scenery. Of course, it is good to be out-of-doors almost anywhere, but here there is the inspiration of natural beauty of a vivifying character, and the consenting soul of "the wide aerial landscape" speaks to the soul of the beholder. I wish the trustees might visit and examine the region, and that lovers of the out-of-door world might explore it and note their impressions regarding it.

Salem has a pretty common in the most populous part of the city, nine acres of sward with trees encircling it, paths and seats. It is for people on foot only, and is quiet and pleasant for women and children. It is, I believe, the old training-field. 2. The Willows, on the shore, said to contain thirty acres or more, adjoining the town farm or almshouse grounds. It is reached by a street-railway from the city, and is resorted to by throngs on summer nights. The area is not so large as it should be, but it is one of the most valuable of all the public holdings on the New England shore, and the cost of maintaining it is very small. The annual appropriation for this purpose is about $1,200. The rents from eating-houses, etc., amount to $800 a year. The real annual cost to the city is thus only about $400. Yet the people of the adjacent suburb of Juniper Point would like to see this place of resort closed. 3. There is an area of two and a half acres on Liberty Hill, in North Salem, with a few fine trees and a spring of very cold water, but the place is neglected, uncared for and abused. A park or common is needed here, as there is a populous suburb near by which has no other place of resort. When I was there on a hot afternoon in August a party of women and children came up at the same time, tired and thirsty, but a huge dog was laving in the spring, and the children had to wait till the water ran itself clear again. The city's neglect of this valuable property is sure to result in its injury and depreciation.

The region formerly known as Salem Great Pastures was held as common land in early times, but it was all divided into private holdings long ago. Much of it is still used for pasturage. It is separated into two parts by the occupied and inhabited belt along both sides of the highway leading to Lynn and Boston. It is to the portion on the eastern or shoreward side of this belt that Salem will probably look for the territory for new parks and commons in the future. I could not learn why it is not thought judicious to anticipate these future needs—which, indeed, already impress most observers—and to purchase the land which will be required while it can be obtained at small cost. There is much complaint by the working people of Salem that they are of late hunted and driven from all the places along the shore to which, from time immemorial, they have been accustomed to resort for small picnics and excursions and family and society outings. Several members of the police force say they are tired of being sent to drive away little parties of quiet and orderly women and children at the behest, as it often happens, of persons who have themselves no real title to the lands from which they want all visitors expelled as trespassers. There is need of additional public holdings on the shore in this region; for a small party to go to The Willows is often about the same as trying to have a picnic in a crowded street or public hall.

Salem is historically one of the most interesting places in New England. Some of the old houses have been destroyed which should have been preserved, but of course they could not all be kept forever. It costs money to acquire these old houses, and to take care of them. To the house in which Hawthorne was born, so I was told, an admission fee of twenty-five cents is charged each visitor. The prevalence of the witchcraft delusion here was a most sad and pitiful episode in the town's early history.

The officers and workers of the Essex Institute and those of the Peabody Academy of Science have done and are doing most useful work in stimulating and extending historical research and in promoting the temper and spirit which make history worth preserving. There are many objects of great interest and value in their museums. Mr. John Robinson, who is treasurer of the Peabody Academy of Science, has recently written a series of entertaining articles on the trees of the region. It has been published in the Salem *Gazette*, and it should now be issued in a more permanent form so as to be accessible to the public. Mayor Rantoul expressed much interest in the aims of the Trustees of Public Reservations.

Boston, Mass. *J. B. Harrison.*

Exhibitions.

Chrysanthemums in Boston.

BOSTON has never seen such a magnificent display of Chrysanthemums as those which last week filled the two halls of the Massachusetts Horticultural Society. For several years the liberal prizes offered by the society for this now popular flower have brought together very remarkable displays, but all of them have been eclipsed by that of this year. The specimen plants, perhaps, were no better than the best of Mr. Hunnewell's collection of last year, but there were more high-class plants in this year's exhibition, and the average of the whole was far better than anything seen in Boston before. It is a question, perhaps, whether the modern fashion for big blooms has not destroyed some of the real beauty of the Chrysanthemum; it certainly is a fact which no one with any sense of proportion will be able to dispute that a single spindling stem six or eight feet tall surmounted by one flower is not of itself an object of beauty, however great may have been the skill of the gardener who produced it; but allowing that size and substance of plants and of flowers is the chief aim of Chrysanthemum-culture, then the Boston show was as remarkable an exhibition of these flowers as the country has ever seen. It should be added, however, that while tall plants which carry a single flower are not objects of individual grace, there is yet one sufficient reason for cultivating some Chrysanthemums in this way. When several of these long-stemmed plants are cut and intelligently grouped in a vase, the flower is used to its best effect for decorating large rooms.

Cut flowers principally decorated the lower hall, and potted plants the upper, and in each the arrangement was excellent, both in the general effect produced and in the opportunity given to examine the different specimens in detail. The principal contest was in the competition for the prize offered for twelve specimen plants, as it has been for some time an open secret in the neighborhood of Boston that two of Mr. Hunnewell's sons were making extraordinary efforts to produce the best plants for this class. They had no serious competition, and Mr. Walter Hunnewell, whose plants last year were the admiration of every one who saw them, secured the first prize, and Mr. Arthur Hunnewell the second. The first-prize group consisted of short broad plants, with the exception of one splendid specimen of Louis Boehmer, the handsomest plant in the whole exhibition, all in the very pink of condition, but it seemed to us not quite as good, on the whole, as the plants which took the first prize last year. Mr. Arthur Hunnewell's plants were taller, some of them more than six feet high, but they lacked something of the finish which always characterizes Mr. Hatfield's Chrysanthemums.

Of the seedlings, which were shown in great numbers, few were particularly distinct, and it is plainly difficult to originate anything much better than what already exists in any of the strains which our florists are working. Of the seedlings displayed this year for the first time it is needless to speak, as very few of them stand the test of a second season, and no Chrysanthemum is worth propagating until it has flowered during at least two years. Of such plants there was nothing finer than A. H. Fewkes' Beacon, an immense white flower, fully ten inches across, and very solid and compact. It belongs to the incurved Japanese section, in which, also, were the following: Mrs. Jerome Jones, a large white flower, raised by H. A. Gane, Esq., of West Newton, Massachusetts; Pitcher & Manda's Harry May, and an excellent bronze yellow flower named Walter Hunnewell by its raiser, Mr. J. T. Hatfield. A very fine specimen of the last, and perhaps the most interesting plant in

the exhibition in the first-prize group, showed that it is a vigorous grower and well suited for exhibition purposes.

Besides the Chrysanthemums there were splendid displays of Roses from F. R. Pierson, of Tarrytown-on-the-Hudson, New York; from F. C. Cutts, and the Waban Rose Conservatories. There were Carnations from H. E. Chitty, of Patterson, New Jersey; Edward Swayne, of Kenneth Square, Pennsylvania, and others. Special collections of cut Chrysanthemums in competition for the special prizes offered by the Boston Gardeners' and Florists' Club were remarkably fine.

Besides the awards already mentioned, the principal prizes for plants were given to Francis B. Hayes, Dr. C. G. Weld, N. T. Kidder, John L. Gardner, Dr. H. P. Wolcott and Joseph H. White. For cut flowers the leading prizes were awarded to S. J. Coleman, Charles V. Whitten, Pitcher & Manda, E. A. Wood, John Simpkins, A. H. Fewkes, Dr. C. G. Weld, Joseph H. White.

Chrysanthemums in Philadelphia.

IT would be hardly fair to make a comparison between the exhibition last week at Philadelphia and the one the week before in New York. The entire collection at Horticultural Hall could have been almost hidden away in some corner of the vast floor-space of Madison Square Garden, and yet the display lacked neither size nor variety, and it was pervaded by a certain air of finish and refinement which is rarely seen. It would be fortunate for New York if the treasures of the private greenhouses in its neighborhood could be displayed on occasion to the delight and instruction of the public just as those of Miss Baldwin, Mr. A. J. Drexel and Mr. George W. Childs can always be counted on to add to the interest of an exhibition in Philadelphia. Enough plants were sent from the greenhouses of Miss Baldwin and Mr. Drexel to fill two long tables, and every one of them showed the skill of William Joyce and James Long, the well-known gardeners of these establishments. To mention the noteworthy specimens would be to give a catalogue of the entire list. Every plant was clean, thrifty and perfect after its kind. These collections, with some magnificent Palms which Mr. Hughes brought from the garden of Mr. G. W. Childs, together with the admirable collections of commercial greenhouse plants, sent by H. A. Dreer and William Ball, helped to form from different points of view an admirable background to the bright flowers, and softened the glare of color which would otherwise have been unpleasant. The stage was very beautifully arranged with masses of well-grown yellow Chrysanthemums, with abundant foliage banked against a line of Palms and Dracænas and other greenhouse plants, while in front was a stage of rare and beautiful Cacti, such as Mr. A. Blanc alone can furnish.

The Philadelphia exhibitions have always been strong in specimen plants. This year's collection hardly seemed to us equal to the one of last year; but, as usual, Mr. James Verner, gardener to A. J. Drexel, easily won the first prize for the best collection of ten plants of ten varieties. These were strong and symmetrical specimens, each one filled with flowers that were almost uniformly at their best. The plants of this collection were Mrs. Irving Clarke, Frank Thompson, Kioto, Robert Bottomley, President Harrison, Mrs. M. Wheeler, Lilian Bird, Puritan and Cullingfordii. Fine specimen plants were also shown by W. K. Harris, H. G. Stapden, J. W. Colflesh, John McCleary, H. B. Surman, Gebhard Huster and Thomas Monahan. Mr. Verner took many prizes in other classes besides the principal one for ten varieties. It was noted by many of the experts present that the variety President Harrison, although the single flowers were not of the most attractive kind, showed admirably in specimen plants. Plants of Ruthven were also noteworthy for quality.

The cut flowers were never excelled; and, indeed, we have come to expect every year that they will be an improvement on those of the year before. All the old kinds were done so well that there is hardly any reason for selecting any of them for especial mention, although the vase which contained a group of the blooms of Frank Thompson could hardly escape notice in any company. For cut flowers the chief prizes were taken by James Heacock, Hugh Graham, Dailledouze Brothers, George Craig, J. W. Colflesh, Fred. R. Sykes. Silver medals were awarded to Hugh Graham for the Chrysanthemum Roselyn, an immense pink incurved flower, which had only one rival in its class, and that was Maude Dean, which seems to have a little more decided color; to T. H. Spaulding for Emily Ladenburg, the dark velvety red variety, which has already been described in our report of the New York show; to Robert Craig for Lewis Childs' Madeira, a bright yellow plant of perfect form, and probably the best Chinese incurved flower of the year; to Robert Craig for Mrs. Robert Craig, a flower of great depth and substance; to Peter Henderson & Co. for the Golden Wedding, an importation from Japan and a flower of the largest size, high in the centre, with the petals rather incurved and loosely twisted, while the outer ones are reflexed and somewhat drooping—a bold flower, of uncommon form and great sturdiness in stem and foliage; to the same firm for Good Gracious, a flower imported in the same lot, and which may be described as a large pink Kioto; to H. B. Surman for an immense yellow incurved flower of the very largest size. Certificates of merit were awarded to Hugh Graham, T. H. Spaulding, Robert Craig, Peter Henderson & Co. and Harry Surman for new Chrysanthemums.

The display of Roses was admirable for the season, and so were the Carnations of Mr. Thomas Butler, H. E. Chitty, Dr. Williams, Edwin Lonsdale and others.

Recent Publications.

Glimpses at the Plant World. By Fanny D. Bergen. Illustrated. Lee & Shepard, Boston.

It is amusing for older persons to look through a little book like this and see the pleasant ingenuity displayed in its treatment of facts which they have learned through dry scientific statements. But it is a question, perhaps, whether books of its sort do much of the good they are intended to accomplish. For they are evidently intended not merely to amuse children or to interest them in a broad way in the vegetable products which surround their summer steps, but to give them some definite knowledge of fundamental botanical facts. "Knowledge made easy" may be discussed, we think, in a general way as regards its beneficial effects upon youthful minds. It does not seem certain that such knowledge does more good than it does harm by vitiating a child's conception of what education means. Real knowledge can be gained only by real study, and real study is hard work, though good teaching may make it delightful work as well. To accustom a child to the idea that in swallowing bits of information sugared and gilded into the likeness of amusing literature is, we think, to labor against the formation of those truly studious habits of mind which early education should chiefly address itself to nurturing. Aside from the mastering of the three Rs the chief thing a child can learn in its first school years is simply how to learn. Not until its mind is better developed can it amass much information that will be profitable through life, while if right habits of study and a right conception with regard to what study means are not formed before the mind is developed the chances are great that they will not be formed later on. Of course, it will do a child no harm to peruse a few books like Miss Bergen's "Glimpses at the Plant World," for the information it gives seems to be accurate. All we intend is to protest against the idea that books of its class are in the true sense educational, to point out the danger that teachers and parents may come to trust too largely to their efficacy, and children may be persuaded to believe that when they have easily picked up a few scattered fragments of information they know something about the subject in question. Left to themselves, however, children are not likely to make too much of such fragments, for they are very likely to pass them wholly by. Instead of picking out, as they were expected to do, the kernels from the sugary mass, they will most often throw away the kernels and delight themselves simply in the sugar that surrounds them.

Every time, therefore, that we see a book of this sort we wish the enthusiasm and conscientious labor that had been put into its making had been a little differently exercised. Simple books about natural phenomena can play a wholesome and important part in the development of infantile intelligence, and this in two different ways. They can describe the pretty or amusing or odd or interesting things that a child sees in its walks so as to awaken the imagination, excite curiosity and quicken powers of observation. This service is performed by many passages of Miss Bergen's book. But we think its excellence would have been greater had she contented herself with this and not attempted to explain the scientific significance of this fact and that, or to give names to such things as the parts of a flower. A little mind will be only confused or repelled by the addition of such nuggets of fact, and even were they all to be assimilated its stock of information would not be enlarged to any valuable extent. The right effect of a series of informal talks about plants ought to be the impression that interesting things can be learned about them at the proper time and in the proper place. It ought not to assume any part of the office of an elementary botany; it ought simply to prove

to the child that botany must be an attractive study. This foundation once laid, the useful book of the second sort can be brought in play, and this of course is the elementary botany itself. This ought not to try to be amusing or to condescend to fanciful suggestions, poetic interpretations or the stimulating of mere curiosity. It ought to be simple and direct, systematic and scientific, although of course in its language, its choice of fundamental facts and its avoidance of all which can be left for later periods of study, it ought to be carefully adapted to budding intelligences. One such botany is, we all know, within the reach of every American child. No child too young to understand Gray's "How Plants Grow" is old enough to get valuable botanical information from other sources; and none who does not find it interesting will be charmed into botanical enthusiasm by the administration of sugar-coated pellets. The total separation of these two kinds of writing—of the kind which is meant to awaken interest from the kind which is meant to supply information—would, we feel sure, be of great benefit to the rising generation.

Notes.

A natural history society, with Mr. William M. Canby as president, has just been established in Wilmington, Delaware.

The English building on the grounds of the World's Fair in Chicago is to have the general character of an old English manor-house.

The popular French name for Cotinus is Arbre à Perruke, or Wig-tree, a term which expresses its peculiar appearance when covered with its abortive pedicels as distinctly, if not as prettily, as does the English term "Smoke-tree."

The Iceland Poppy shows its sturdy qualities by throwing up occasional blooms in spite of the frost. Perhaps the plants which are to bloom next spring would do better if they were kept from flowering the autumn before, but the flowers are very beautiful now amid the general desolation of November.

The beauty of the deep blue flowers of the low-growing and half-prostrate *Plumbago Larpentæ* has often been spoken of in these columns, but now that the frost has destroyed its bloom the plant is still beautiful for the bright scarlet of its foliage. A spread of a square yard or so makes a very brilliant spot at this season on rock-work or wherever else it may be planted.

About 10,000 corn-cob pipes are daily manufactured in this country, all being made in three factories, one of which stands at St. Louis, one at Greenwood, Nebraska, and the third in Kansas. The cobs are all procured in Missouri, and are supplied by the Collier variety of Corn, on which they grow usually heavy, woody and hard, while the stems are formed of the so-called Arkansas Swamp-cane or reed.

In a preliminary list of the plants of Franklin County, Ohio, lately made by Messrs. A. D. Selby and Moses Craig for the Columbus Horticultural Society, it is stated that 138 native plants and 85 introduced plants have been added to the number given in a catalogue made by William S. Sullivant in 1840. It appears that 15 per cent. of the plants of the county are introduced and that 8.5 per cent. of these have appeared during the last fifty years.

No more striking contrast to our beautiful rural cemeteries, filled with costly monuments and carefully tended plants, can be imagined than the City Cemetery of New York—the "Potter's Field," on Hart's Island in the East River. Here about 2,500 unknown and pauper dead are annually buried. There are some 75,000 drunkards' graves, and the most pathetic sight of all is the only monument, which bears sad tribute to the fact that some of the brave soldiers of the Civil War are here interred.

In the recently issued Proceedings of the Pennsylvania Academy of Natural Sciences a record is made of a double-flowered Skunk Cabbage (*Symplocarpus fœtidus*), and an illustration which shows the two spathes fronting each other is given in *Meehan's Monthly* for November. In the same magazine it is stated that in a Japanese work on botany there is a figure of this plant, which grows in Japan as well as in America, with two spathes, the outer one being a purplish violet with orange stripes within and darker lines without, and the smaller spathes in the interior striped with white and having a greenish border.

We have received from Mr. Joseph Meehan a branch of *Elæagnus umbellatus* which is thickly covered with fruit. This plant has been distributed very abundantly during a few years past as *E. longipes*, which, however, it does not resemble. It is much more like the one known as *E. parvifolius*, but this ripened its fruit more than a month ago, while *E. umbellatus* still has fruit on it, which will be frozen off before it ripens. The berries, as they came to us, were of a beautiful amber color, thickly set along the stem and about as large as currants. The fruit adds much to the ornamental value of this shrub, which is beautiful at all seasons of the year. The plant from which this branch was taken is in the garden of Mr. A. G. Elliot, of Germantown.

The little park known as the Bowling Green in this city originally lay in front of a fort built of logs in the year 1615, which, in 1626, was replaced by a store-house surrounded by palisades of Red Cedar, and was used as a drill-ground. In 1732 the ground was leased to residents of the neighborhood and converted into a bowling-green, and in 1770 it was chosen as the site for a leaden statue of George III., which had been sent from England, and was surrounded by an iron railing, for which the city paid £800. On the evening of July 9, 1776, when the Declaration of Independence was read from the City Hall, statue and railing were demolished by the excited populace, and the pieces of the former were sent to Oliver Wolcott at Litchfield, Connecticut. Here Wolcott's wife and daughter cast the lead into 42,000 bullets, and it was believed that four hundred British soldiers met their death by missiles which had once formed part of the statue of their king.

In eastern New England this year the autumn foliage of trees and shrubs is less brilliant than it has been in several years. The foliage of many trees, especially of the Ash, the Hickories, and the Virgilia, all of which usually turn to brilliant shades, was killed by a hard frost in the last week of October before they had changed color at all, and these trees are now generally leafless. The leaves, too, have fallen from many Maple-trees, both Red Maples and Sugar Maples, without any previous change of color. The Oaks, however, promise to turn as usual, and just now some White Oaks and the Chestnut Oak which, with its deep orange autumn color, is always one of the most beautiful trees at this season of the year, are particularly noticeable. The Red Oak and the Scarlet Oak turn later. It is interesting to note that in spite of the hard frost the Gleditsias still hold a large part of their leaves, which are almost as bright green as they were at midsummer, while its nearest relative, the Kentucky Coffee-tree, is quite leafless.

In an article recently published in the New York *Sun*, contrasting this year's fair of the American Institute with the one held fifty years ago, it is said that in the Floricultural Department of this latter the most striking attractions were "thousands of specimens of what was called 'that fashionable and esteemed flower, the Mexican Dahlia,' in all its varied shades. It was considered worthy of mention that the root of the Queen Dahlia had cost £10 the previous spring. G. C. Thorburn was credited with having imported the majority of the stock, or parent plants, cultivated in this country at the time. . . . Of the forty premiums for agricultural and horticultural products Thomas Addis Emmet, one of the most famous lawyers of the time, got a diploma for the best purple Egg-plants, William Niblo got a copy of Downing's 'Rural Architecture' for the greatest display of tropical fruits, and Niblo and Dunlap got a diploma for the best self-colored and various-colored Dahlias. . . . Among the exhibits of garden ornaments were 'splendid specimens of stained glass peculiarly adapted to the highest style of garden architecture.' The making of stained glass had been introduced here only a few years before. A cast-iron sun-dial was described as 'a very useful article to any one who sets a due value on his time. When its cheapness is considered, we should think it strange that any person who has a situation in which to place it should be without one.' An iron case was considered a valuable ornament where stone pillars were used, as in gardens and parks. Some iron settees were described as 'entitled to rank among the luxuries of life.'" But the "climax in garden ornaments" seems to have been an enormous cast-iron fountain composed of groups of "female figures of great beauty," with Tritons spurting water ranged about an upper basin. Among other exhibits of importance "were Amazon bonnets made of so-called Manilla-grass, which was the fibre of Aloes. The braids were both white and dyed, and the judges could not too highly commend its exhibitors for originating and bringing to its state of perfection a fabric of so much importance."

TOWN OF BROOKLINE.

PARK DEPARTMENT.

Proposals for Plants.

SEALED PROPOSALS for all or any of the Plants mentioned below, indorsed, "Proposal for Plants," will be received at the office of the Clerk of the Park Commissioners, Town Hall, Brookline, Mass., until December 1st, 1891:

200 Red Oak (Quercus rubra), 6 to 10 feet high.
100 Pin Oak (Quercus palustris), 6 to 10 feet high.
100 White Oak (Quercus alba), 1 to 3 feet high.
100 White Ash (Fraxinus Americana), 6 to 10 feet high.
200 Sugar Maple, 6 to 10 feet high.
200 Red Maple, 6 to 10 feet high.
50 American Elms, 6 to 10 feet high.
1,000 Berberis vulgaris, 1 to 2 feet high.
500 Berberis Thunbergii, 6 inches to 1 foot high.
500 Viburnum dentatum, 1 to 2 feet high.
500 Viburnum Opulus, 1 to 2 feet high.
1,000 Cornus paniculata, 1 to 2 feet high.
1,000 Cornus alternifolia, 2 to 3 feet high.
1,000 Cornus sericea, 1 to 2 feet high.
200 Cornus florida, 4 to 6 feet high.
500 Cornus circinata, 2 to 3 feet high.
500 Lycium vulgare, 2 to 3 feet high.
200 Sambucus Canadensis, 2 to 3 feet high.
1,000 Sweet Fern (Comptonia asplenifolia), 6 to 12 inches high.
1,000 Buckthorn (Rhamnus catharticus), 2 to 3 feet high.
500 Staghorn Sumach, 3 to 4 feet high.
1,000 Myrica cerifera, 1 foot high.
1,000 American Wild Roses, 1 foot high.
500 Sweet Brier Roses 1 foot high.
500 Ampelopsis quinquefolia, 2 to 3 years old.
500 Celastrus scandens, 2 to 3 years old.
500 Wild Grape-vines, 3 to 4 years old.

All plants must have been grown in nursery at least one year, well-rooted, and in all respects first-class. They are to be delivered, in good order, between April 1st and April 10th, 1892, freight prepaid, at the Brookline Railroad Station, or at one of the local express offices.

Bidders must send to the Engineer a specimen of each variety of plant that they propose to furnish, to which standard, in case the contract is awarded, the bidders will be required to conform.

The Commissioners reserve the right to reject any or all bids if they deem it for the interest of the town to do so.

Further particulars may be obtained upon application to ALEXIS H. FRENCH, C. E., Town Hall, Brookline, Mass.

HENRY M. WHITNEY,
CHARLES S. SARGENT,
WILLIAM H. LINCOLN,
Board of Park Commissioners of the Town of Brookline.

October 23, 1891.

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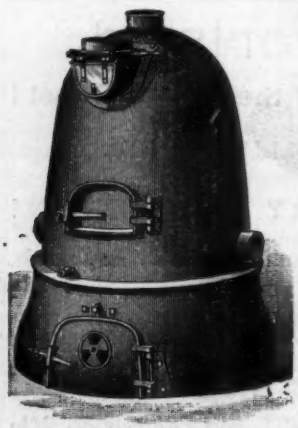

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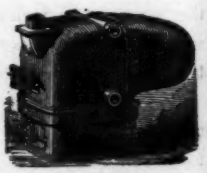

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